



Ports and the Energy Transition

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Maritime Advisors

PRIVATE & CONFIDENTIAL

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Challenges and opportunities for ports

Ports face challenges from emissions reduction but there are also new opportunities in the energy transition

Emissions regulations
and Carbon pricing

Decarbonising port
activity

Gateways for new
energy

Offshore wind

Renewable energy
generation

New vessel fuels

Fit for 55

The European Green Deal and Climate Law aim at making Europe the first climate-neutral continent by 2050, transforming the EU economy and society to meet climate.

In 2021 the EC published a package of proposals (“**Fit for 55**”-**proposals**) with the aim to deliver on the European Climate Law target to reduce GHG emissions in the EU by at least 55% (over 1990s levels) by 2030, and enable climate neutrality by 2050. These proposals will enable the necessary acceleration of GHG emission reductions in the next decade.

Application of emissions trading to new sectors

Tightening of the existing EU Emissions Trading System

Increased use of renewable energy

Greater energy efficiency

"Fit for 55" proposals

Fast roll-out of low emission modes + infrastructure and fuels

Align taxation policies with European Green Deal objectives

Measures to prevent carbon leakage

Tools to preserve and grow natural carbon sinks

Ports will play a central role in the delivery of the proposed **FuelEU initiative** - providing new infrastructure for the processing, storage and distribution of low carbon fuels which will support a material reduction in GHG emissions from shipping.

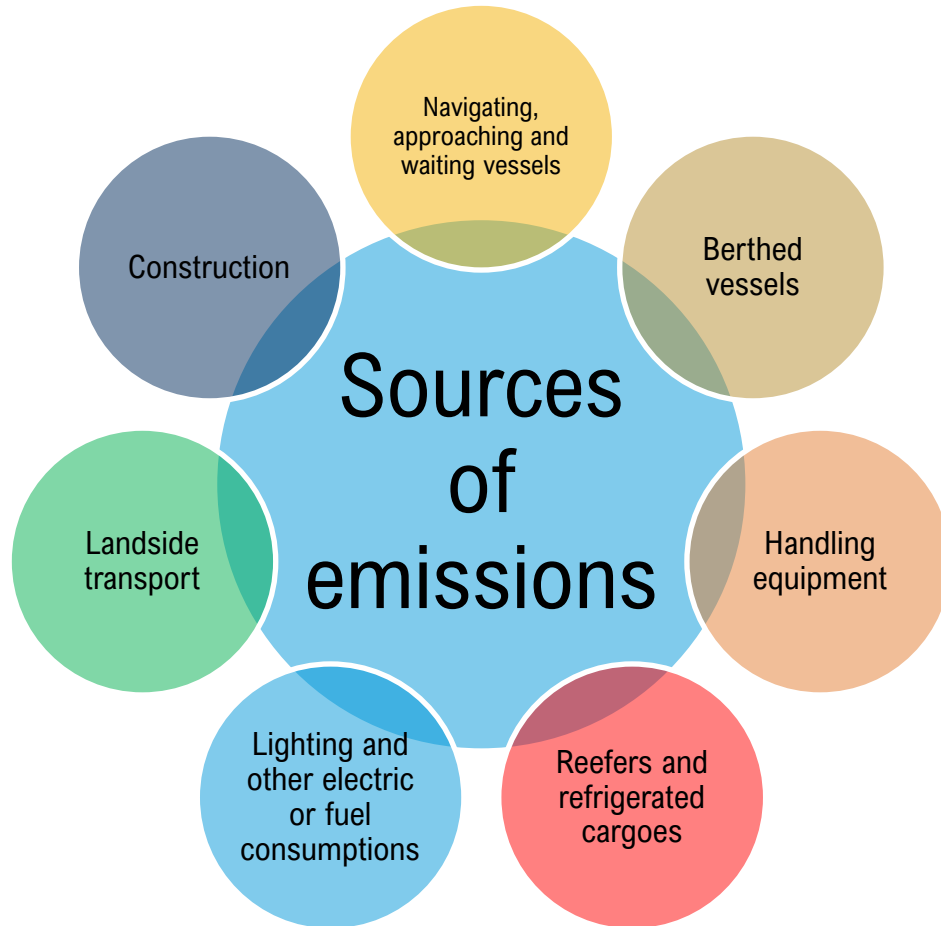
Introduction of a fuel standard limiting the GHG intensity of energy used in ships

Obligation for most polluting ships to connect to OPS at berth (or use zero-emission technology)

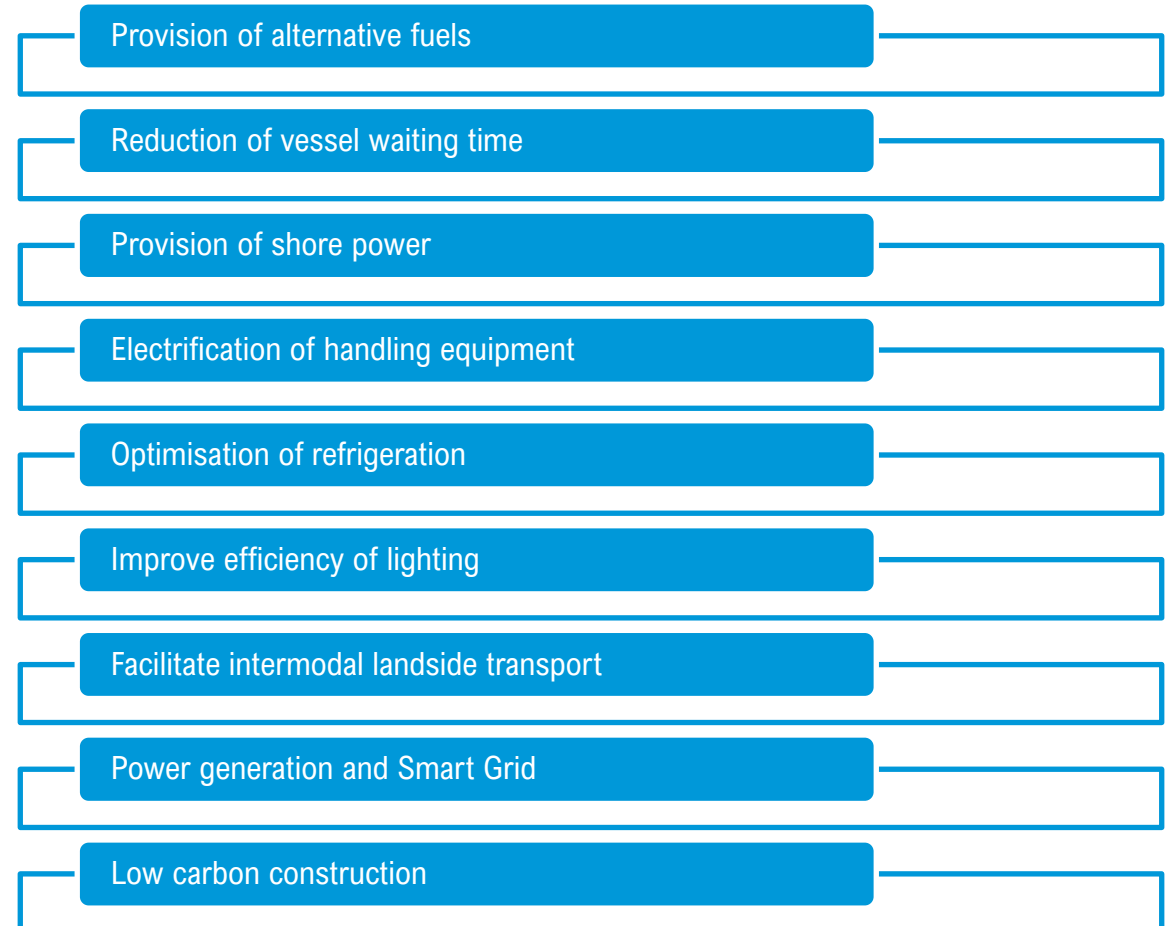
ETS compliance as well as reporting and verification obligations

Ports are sources of emissions and providers of solutions

Emissions in ports



Enabling actions



New energy gateway: Rotterdam case

Rotterdam is working to develop a hub for hydrogen production, import, application and transport to other countries in Northwest Europe.



- Hydrogen is a possible replacement for natural gas as an energy source and as a feedstock in the manufacture of products in the sustainable chemical industry
- Rotterdam plans to produce, import, store and act as a distribution hub for hydrogen
- Key elements include links to offshore wind, hydrogen production facilities, pipelines and
- In 2022, Shell took the final investment decision to build Europe's largest green hydrogen plant will be built on Maasvlakte 2. Holland Hydrogen I is expected to be operational in 2025.
- 200MW plant will produce 60 tonnes of green hydrogen per day

Renewable energy: Port of Antwerp-Bruges case

Port of Antwerp-Bruges is using wind and solar power and is researching the use of industrial heat commercially and supplying it to buildings in the city and the port.

Wind



Heat



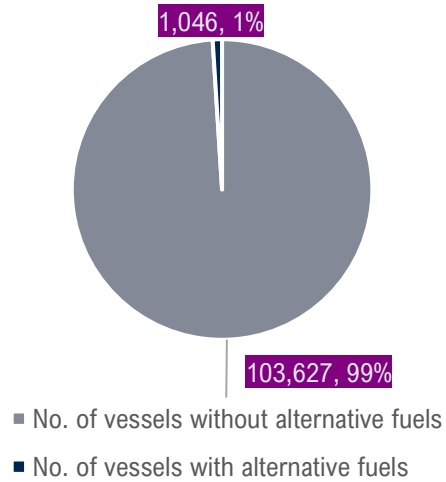
Offshore wind: Green Port Hull

Green Port Hull provides key infrastructure for offshore wind in the North Sea

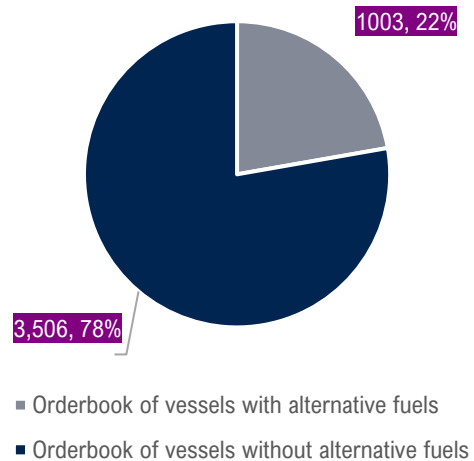


Alternative fuel uptake: Global fleet

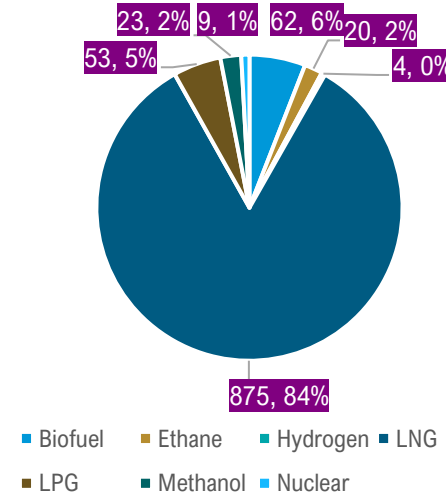
Global fleet alternative fuel uptake



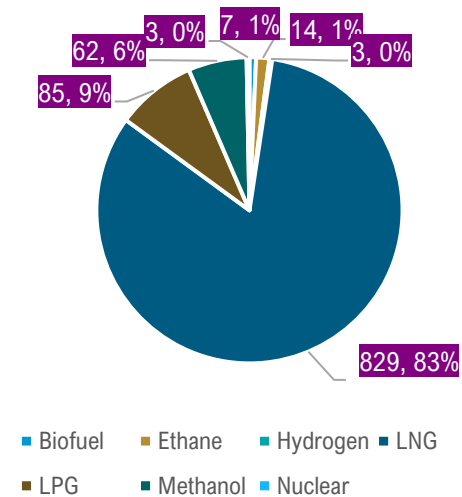
Global orderbook alternative fuel uptake



Alternative fuel uptake – total global fleet



Alternative fuel uptake - total global orderbook





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